The FAA Airport Safety Newsletter

Volume 2, Issue 2----------June 5, 2000

The FAA ASNL
is the Newsletter
of the
Airport Safety and Operations Division

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Thought for this Issue.....

Airport Operators!

Have you looked at your airport diagram lately?????? Have you checked the listing for your airport in the Airport Facility Directory (A/FD)? Is it accurate? *Are you sure? Have you checked Jeppesen? the NOS charts?*

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Airport Geometry: It's just Not Simple Math Anymore!

Most of the nation's airports were constructed in the 1940's and 1950's. The "A" configuration accommodated what was then thought to be the most efficient way to handle operations. Over the years, other configurations have been developed: parallel runways, and every derivative, variation, and combination imaginable. The result has been very positive in one sense. It is now possible to separate and segregate traffic; longer runways now accommodate the new and more demanding performance requirements by technologically advanced aircraft. But! Aircraft must still taxi to and from terminal ramp areas to enplane and deplane passengers and offload/load cargo. Airport surface movement has become a compelling subject in and of itself, and surface traffic flow and sequencing have now become sophisticated exercises. Procedures to expedite ramp egress and ingress have evolved to a state where taxi routes have been established and published for some of the major airports.

In the early 1990's, airport sign systems underwent a dramatic change; the signs for airport surface movement became standardized, and the pilot community welcomed the system by which aircraft navigated the airport surface. The standardized sign system enhanced situational awareness and assisted in expediting traffic.
Standardized signs and taxi routing have clearly been extremely helpful in

facilitating surface movement on airports. This is a credit to the FAA Airports Office, Air Traffic Control, and to the airports that implemented the sign programs and plans. It also reflects the cooperation of the user community and the positive feedback from pilots.

However necessary and helpful these improvements have been, they did not result in the expected decrease in surface incidents. Thus, it has become necessary to look at additional aspects, to identify the role each plays in contributing to surface incidents and to gauge the extent to which they can be addressed and/or changed to de-escalate the present situation.

One of these aspects involves human factors. It is less manageable, less responsive to the logical, methodical, analytical approach that has been applied to the marking, lighting, and signing challenges. It is comprised of a number of subsets, and it is a situation that demands attention, if the upward trend of surface incidents on the nation's airports is to be stemmed.

Airport geometry is equally challenging but probably with fewer variables. This pertains to a very complicated and no less compelling factor, but one that may be more manageable. Like marking, lighting, and signs, it is better suited, as a subject, to analytical and logical methodologies. Additionally, it should be addressed first, to enable a more effective approach in addressing human factors issues.

More is Less?

The history of marking, lighting, and signs has been more, bigger, brighter, etc. We are now at the point where the superlatives have been exhausted. And, still, we have surface incidents. The layers of stimuli to cue those who operate on the airport surface have merely raised the level to which a human being must rise to ignore them. Human beings have risen to the challenge! This is only a small part of the problem, however. All one has to do is look at the today's airports. More signs, more marking, more lights....what has it accomplished? Probably information overload. Just look at our airports.

Look at the Airport!

One of the most striking aspects of today's airports is their complexity. A myriad of intersections, stub taxiways, high-speed exits, extra wide entrances to, and exits from, runways, not to mention the multiple runways and designated ramps for the military, cargo, general aviation, and the passenger terminal. It is a tangled web. This is even more apparent at night, when pilots are confronted with a sea of lights, or in weather, when drizzle, rain, snow and fog create glare, or worse, cover the signs and markings. Even sunrise and sunset can affect vision and produce taxiing in the blind. Taxiing is not an easy task at today's airports.

Airport operators who look critically at the amount of pavement on airports can assess what is really essential, especially if taxi routes are being established. The elimination of some taxiways can mean fewer signs, fewer markings, and a simpler configuration with less confusion and fewer opportunities for surface incidents.

With the help of Air Traffic Control, surface traffic flow patterns can help reshape airport geometry by identifying unnecessary taxiways. For every taxiway, there are the marking, lighting, and signs that must be installed and

maintained. For the airport operator, this is a significant maintenance cost.

More importantly, however, are the operating conditions that marking, lighting and signs for paved surfaces present. This is what faces the aircrew, each time they taxi in or out of a ramp. *Every intersection is an opportunity for a surface incident.*

Given the workload that the flight crew is handling during taxiing, simplification of the airport geometry can be a critical step in reducing the exposure to risk of a surface incident.

Vehicle/Pedestrian Deviations VPDs
This category includes airport ground operations/service personnel, airport construction crews, airport service personnel, police and other law enforcement personnel, mechanics operating aircraft on the ground, and pilots who operate their vehicles to and from hangars, repair facilities, and tie down areas. These vehicle operators, with access to airside, have also contributed significantly to surface incident statistics, at both GA and certificated airports,

1. Airport Ground Operations
At airports certificated under part 139, access to movement area on the airport is restricted and controlled. Those with access to movement area must be aware of the responsibilities implied by this access and trained accordingly.

Those whose jobs involve the operation of tugs, carts, fuel trucks, and aircraft service vehicles should attend driver training programs that are thorough and effective. Airport familiarization; ATC communications; marking, lighting and signs; and other aviation conventions are significant portions of these programs, along with testing and OJT. A recent surface incident illustrates just one of these areas, that of aviation conventions, and offers a valuable lesson in what a comprehensive and effective, thoroughly-taught program has to cover.

An airport service vehicle was cleared to enter the movement area, to proceed as requested toward runway 9L/27R *at the east end*. The active runway was 9L. The vehicle operator was directed to hold short of runway 9L. On the east side, the sign at the approach end is 27R. Not seeing any indication of the 9L, the vehicle operator crossed the runway, causing a conflict and ultimately a loss of separation and go-around for an airplane on final for runway 9L. When questioned about his understanding of the clearance, the driver admitted he was confused about what the controller meant and that he did not understand that holding short of runway 9L meant the entire runway, and that the other end of 9L is 27R!

Failure to understand sign conventions and ATC practices led this vehicle operator to a runway incursion. Some would say, put the designation 9L-27R at the ends. This is acceptable according to Advisory Circular (AC) 150/5340-18. However, it is not the convention. There are important reasons for the single designation at the approach end of a runway. In this case 27R would give the pilot assurance that s/he is at the approach end of the runway and not at an intersection (where, as a result, a pilot might not be using the entire length of runway available for take off). Additionally, ATC identifies the direction in which operations are taking place and generally uses this designation until the direction has to change because of wind direction changes or the calm air runway direction is usable.

One aspect of driver training programs incorporated into part 139 is a provision for addressing infractions or violations of the airport's ground operations rules. This is intended to place responsibility where it belongs: personnel operating on the airside are responsible for driving safely and obeying rules.
2. Construction Crew Access

Whenever there is construction activity on airports, airport operators assume additional safety responsibilities. Obviously, personnel involved in construction must be informed about airport rules involving vehicular traffic. Pre-construction safety briefings and the establishment of procedures to ensure safety during construction are common sense actions that every airport operator should take prior to *any* construction activity, no matter how minor.

3. *Airport Service Personnel*
Occasionally, personnel with specific functions are called in to perform a task at the airport, for example, mosquito spray control or fence repairs. Familiarization with airport procedures should be arranged or an escort provided. These should be treated in the same manner as construction activity.

4. *Police and Law Enforcement Personnel*
Accustomed as they are to being "the law," it is not surprising that police and other law enforcement personnel believe that they can proceed on to the airport surface to do their jobs. Surface incidents involving police vehicles have increased, and airport operators should make the effort to meet with police chiefs and law enforcement offices in their communities and, through them, make law enforcement personnel aware of airport protocols, for their own safety as well as that of airport users. This is the only logical way to help them do the job for which they are on the airport in the first place. Recently, a CertAlert was issued addressing this issue. Airport operators can ask an Airport Certification Safety Inspector for a copy or access the document on the FAA Internet at
http://faa.gov/arp/pdf/cert0004.pdf

5.*Mechanics Operating Aircraft*
Another group responsible for an increasing number of surface incidents involves airline mechanics who are moving aircraft to facilities for troubleshooting, repairs, or testing parts/systems for return to service. All personnel who have access to the movement area should be familiar with the airport's ground operating rules.

6. *Pilots*
At some certificated airports and at most GA airports, access to hangars and tie-downs is an important part of using the airport. But with this privilege comes
responsibility. Every airport should have ground operating rules, in the interest of public safety and of serving the common good. Clearing one's self prior to crossing runways at both towered (where an ATC clearance is also required) and non-towered airports, giving way to aircraft, driving at safe speeds: these are essential to making the airport a safe and enjoyable place for all users.

WOULD YOU LIKE A POWERPOINT PRESENTATION ON RUNWAY INCURSIONS FOR AIRPORT USERS?
Click on http://www.faa.gov/arp/nwltrppt.ppt

The following are recent surface events that illustrate the need for vigilance. These are representative of the VPD category being tracked at FAA National Headquarters.

Vehicle/Pedestrian Deviation (VPD)
VPD reported at a major airport when an FBO vehicle crossed a helipad as a Sikorsky S 76 was in descent at approximately 30 feet AGL. Helicopter stopped descent, and vehicle cleared the helipad.

VPD reported when an unidentified vehicle was driven up and down a runway and a taxiway without authorization. All other airport traffic was stopped. Driver was apprehended after crashing into an airport operations vehicle that attempted to block it.

VPD reported when a pedestrian crossed a taxiway and runway without authorization to chase a dog. Beechcraft (BE-90) on short final for this regional airport was instructed to go-around.

VPD reported with one fatality when a Pitts, landing on a turf runway, struck a golf cart driver who was spraying weeds.

Be Alert! Be Careful! Be Safe!
Your life hangs in the balance!

STATISTICS

Legend FOR vIGNETTES AND STATISTICS BELOW

Runway incursion (FAA Order 8020.11A, Ch.1 Par 5): Any occurrence at an airport involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in loss of separation with an aircraft taking off, intending to take off, landing, or intending to land,

OE = Operation Error, attributable to an incorrect directive from ATC
PD = Pilot Deviation, attributable to an incorrect action by a pilot entering a movement area without proper clearance
V/PD = Vehicle/Pedestrian Deviation, attributable to an incorrect action by a person in a vehicle or on foot who enters the movement area without proper clearance

Preliminary numbers until final investigations are completed

Runway Incursion Statistics CY 2000 to date.

CY 1-00

Month	OE	PD	V/PD	MISC	Total
Jan	2	15	5	1	**23**
Feb	5	12	7		**24**
Mar	11	21	3		**35**
Total	18	48	15	1	**82**

CY 1-99

Month	OE	PD	V/PD	Total
Jan	7	17	4	**28**
Feb	8	9	5	**22**
Mar	3	8	6	**17**
Total	18	34	15	**67**

CY 2-00

MONTH	OE	PD	V/PD	MISC	TOTAL
Apr	7	20	6	0	**33**
May ▭	7	24	4		**35**
Jun					
Total	14	44	10	0	**68**
Yr to date	**OE**	**PD**	**V/PD**	**MISC**	**TOTAL**
CY 2000	32	92	25	1	**150**

CY 2-99

MONTH	OE	PD	V/PD	TOTAL
Apr	4	15	3	**22**
May	8	18	3	**29**
Jun	7	12	9	**28**
Total	19	45	15	**79**
CY 1/2	**OE**	**PD**	**V/PD**	**TOTAL**
1999	37	79	30	**146**

▭ Data to May 30, 2000